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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/670,513

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EXAMINER

ZHENG, LOIS L

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/670,513	Applicant(s) STEINMETZ ET AL.	
	Examiner LOIS ZHENG	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2 June 2008 has been entered.

Status of Claims

2. Claims 1 and 14-15 are amended in view of applicant's amendment filed 28 August 2008. New claims 21-25 are added in view of applicant's amendment filed 1 November 2007. Therefore, claims 1-25 are currently under examination.

Status of Previous Rejections

3. Previous rejections based on Carson et al. US 4,720,405(Carson) in view of Derule and Blum et al. US 5,331,039(Blum) are withdrawn. Upon further review of Carson, the examiner discovers that the claimed various types of carboxylic acids are only suitable acid components of polyester used in the coating composition(col. 3 lines 35-46).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, 5, 8, 14, 16 and 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derule et al. US 5,683,751(Derule).

Derule teaches a process for forming a temporary protective coating, comprising treating galvanized steel surfaces with a coating solution comprising aliphatic monocarboxylic acid with 6-12 carbons, the solution having a pH of below 7 (abstract, col. 2 lines 21-25). An example of the monocarboxylic acid is heptanoic acid(col. 3 line 35).

Regarding claims 1-2, 5, 8, 18 and 21-22, the coating process steps as taught by Derule are substantially similar to the claimed coating process steps.

Derule's coating composition further comprises tolyltriazole in the amount of 0.5-5g/l(col. 3 lines 49-51) and the molar ratio of monocarboxylic acid salt and the triazole in the coating solution ranges from 0.4 to 10(col. 3 lines 1-5). In addition, example 3 of Derule teaches that 1.5g/l of tolyltriazole is 0.013 mole/l and 12g/l of sodium heptanoate is 0.08 mole/l(col. 5 lines 58-62). Therefore, the broadest tolyltriazole range of 0.5-5g/l is equivalent to 0.0043 – 0.043 moles/l. Based on the molar ratio of monocarboxylic acid salt and the triazole of 0.4-10, the monocarboxylic acid salt in the coating solution of Derule is calculated to be 0.00172 – 0.43 moles/l, which overlaps the claimed organic acid range of 0.1-1.5moles/l. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed organic acid range from the disclosed range of Derule would have been obvious to one skilled in the art since Derule teach the same utilities in its' disclosed monocarboxylic acid concentration range.

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Regarding claim 14, Derule further teaches the presence of oxidizing agents such as sodium nitrite and sodium phosphate in the coating solution(Example 2, col. 4 lines 51-55).

Regarding claim 16, even though Derule does not explicitly teach the claimed coating weight, one of ordinary skill in the art would have found it obvious to have routinely optimized the coating weight via varying the coating time in order to achieve desired performance in the corrosion protecting coating.

Regarding claims 19-20, Derule further teaches that the treated galvanized steel sheet is oiled and rolled(i.e. formed/shaped)(col. 2 lines 44-49). Even though Derule does not explicitly teach that the galvanized steel sheet is shaped by stamping, one of ordinary skill in the art would have found it obvious that the claimed subsequent shaping by any techniques, including stamping or rolling, can be applied to the process of Derule with expected success.

6. Claims 3, 6, 9 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derule, and further in view of Speckmann et al. US 5,230,730 (Speckmann).

The teachings of Derule are discussed in paragraph 5 above. However, Derule does not explicitly teach the claimed combination of two organic acids.

Speckmann teaches an anti-rust emulsion comprising carboxylic acids as corrosion inhibitors, wherein suitable carboxylic acids include straight-chain fatty acids such as hexanoic, heptanoic decanoic and undecanoic acids(i.e. substantially similar to

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claimed undecenoic acid), and branched chain or unsaturated carboxylic acids such as oleic and linoleic acids(col. 2 lines 38-55, col. 4 lines 28-55).

Therefore, one of ordinary skill in the art would have found it obvious to have incorporated a combination of heptanoic, decanoic, undecenoic, oleic and/or linoleic acids as taught by Speckmann into the coating solution of Derule with expected success since Speckmann teaches that such a group of carboxylic acids are functionally equivalent corrosion inhibitors.

7. Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derule in view of Speckmann, and further in view of Bürge et al. US 5,916,483(Bürge).

The teachings of Derule in view of Speckmann are discussed in paragraph 6 above. However, Derule in view of Speckmann do not explicitly teach the claimed saturated dicarboxylic acids.

Bürge teaches a corrosion inhibiting composition comprising carboxylic acids as corrosion inhibitors, wherein suitable carboxylic acids include sebacic, oleic and linoleic acids(col. 7 lines 18-20).

Therefore, one of ordinary skill in the art would have found it obvious to have incorporated a combination of sebacic, oleic and linoleic acids as taught by Bürge into the coating solution of Derule in view of Speckmann with expected success since Bürge teaches that sebacic, oleic and linoleic acids are functionally equivalent corrosion inhibitors.

8. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derule and further in view of Flasch et al. US 3,776,881 B1 (Flasch).

The teachings of Derule are discussed in paragraph 5 above. However, Derule does not explicitly teach the claimed diacetone alcohol as co-solvent.

Flasch teaches an acidic corrosion inhibiting coating composition comprising carboxylic acids such as caproic(i.e. hexanoic), capric(i.e. decanoic), oleic and sebacic acids(col. 3 lines 41-43, col. 3 lines 49-61) and solvents such as diacetone alcohol(col. 3 lines 24-29).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated diacetone alcohol as taught by Flasch into the coating solution of Derule with expected success since Flasch teaches solvents such as diacetone alcohol are suitable for a corrosion inhibiting coating solution comprising claimed types of carboxylic acids.

9. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derule and further in view of Hughes et al. US 6,206,982 B1 (Hughes).

The teachings of Derule are discussed in paragraph 5 above. However, Derule does not explicitly teach the addition of rare earth metals in the +3 oxidation state as claimed.

Hughes teaches the application of a conversion coating to metal surfaces, wherein the conversion coating comprises rare earth metals in +3 oxidation state(col. 3 line 61 – col. 4 line 15) and in a concentration of below 50g/l(col. 4 lines 24-26). The coating composition of Hughes further comprises mono- and/or di-carboxylic acids(col. 6 lines 53-49).

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Regarding claim 12, it would have been obvious to one of ordinary skill in the art to have incorporated rare earth metal in +3 oxidation state and in a concentration of below 50g/l as taught by Hughes into the coating solution of Derule in order to improve the adhesion of the conversion coating and accelerate the coating process as taught by Hughes(col. 2 lines 1-3).

In addition, the concentration of rare earth metal in the coating composition of Derule in view of Hughes overlaps the claimed concentration of greater than or equal to 1×10^{-3} mole/l. Therefore, a prima facie case of obviousness exists. See MPEP 2144.04. The selection of claimed rare earth metal concentration range from the disclosed range of Derule in view of Hughes would have been obvious to one skilled in the art since Derule in view of Hughes teach the same utilities in their disclosed rare earth metal concentration range.

Furthermore, the pH of the coating solution of Derule in view of Hughes overlaps the claimed pH of higher than 4. Therefore, a prima facie case of obviousness exists. See MPEP 2144.04. The selection of claimed pH range from the disclosed range of Derule in view of Hughes would have been obvious to one skilled in the art since Derule in view of Hughes teach the same utilities in their disclosed pH range.

Regarding claim 13, even though Derule in view of Hughes do not explicitly teach that the rare earth metal is claimed gadolinium, one of ordinary skill in the art would have found the use of gadolinium as the rare earth metal in the coating composition of Derule in view of Hughes obvious and with expected success since gadolinium has

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similar properties as other rare earth metals, therefore, should behave similarly to other rare earth metals taught by Hughes.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Derule, and further in view of Emmonds et al. US 6,676,820B2(Emmonds).

The teachings of Derule are discussed in paragraph 5 above. However, Derule does not explicitly teach the claimed use of electrical current.

Emmonds teaches a process for electrocoating metal blanks by immersing metal blanks and electrodes in an electrolytic coating bath(Fig. 2).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the electrodeposition process as taught by Emmonds into the coating process of Derule in order to achieve increased paint utilization, improved corrosion protection and low environmental contamination as taught by Emmonds(col. 1 lines 19-26).

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Derule, and further in view of Melotik US 3,969,152(Melotik).

The teachings of Derule are discussed in paragraph 5 above. However, Derule does not explicitly teach the claimed post treatment using a bath containing rare earth metals.

Melotik teaches an post treatment rinse for metal coatings, wherein the post treatment rinse solution is comprises at least 0.0005M of rare earth metal(col. 3 lines 20-27). Table II of Melotik further shows that an example of rare earth metal salt is cerous nitrate(i.e. Ce^{3+}).

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Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the post treatment coating process of Melotik into the coating process of Derule in order to substantially increase the corrosion and humidity resistance of conversion coated metal surfaces and to improve the surface's receptivity to subsequent adherent coats of paint as taught by Melotik(col. 1 lines 42-59).

In addition, the rare earth metal concentration in the post treatment solution as taught by Derule in view of Melotik overlaps the claimed rare earth metal concentration of greater than or equal to 1×10^{-3} mole/l. Therefore, a prima facie case of obviousness exists. See MPEP 2144.04. The selection of claimed rare earth metal concentration range from the disclosed range of Derule in view of Melotik would have been obvious to one skilled in the art since Derule in view of Melotik teach the same utilities in their disclosed rare earth metal concentration range.

Response to Arguments

12. Applicant's arguments filed 28 August 2008 have been fully considered but they are not persuasive.

In the remarks, applicant argues that none of the cited references teaches the claimed organic acid concentration.

The examiner does not find applicant's argument persuasive because the organic acid concentration as taught by Derule overlaps the claimed organic acid concentration. Therefore, a prima facie case of obviousness exists. See paragraph 5 above.

Applicant further argues that the prior art references do not teach the claimed oxidizing conditions.

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The examiner does not find applicant's argument persuasive for the same reasons as set forth in the rejection of claims 14-15 in paragraphs 5 and 10 above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LOIS ZHENG whose telephone number is (571)272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art
Unit 1793

LLZ